BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Edward J. O'Loughlin	Environmental Chemist

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Cleveland State University	B.S.	1986	Biology/Chemistry
Ohio State University	M.S.	1991	Environmental Microbiology
Ohio State University	Ph.D	1997	Environmental Chemistry

Positions and Honors:

Staff Scientist, Argonne National Laboratory 2001-present.
Postdoctoral Research Associate, Argonne National Laboratory 2000-2001.
Current research program is focused on the use of synchrotron radiation spectroscopic techniques to examine biogeochemical processes affecting the transformation of organic and inorganic contaminants. Current research interests include: 1) Reduction of U^{VI} by biogenic Fe^{II}-bearing minerals formed from microbial dissimilatory iron reduction; 2) reduction of organic contaminants by microbially reduced humic substances; 3) reduction of trace elements (e.g., U^{VI}, Hg^{II}, Cu^{II}, etc) by green rusts; 4) interaction of trace elements with microbial exopolysaccharides, bacteria, and iron oxyhydroxides; and 5) X-ray microprobe imaging of microbe-metal interactions.

National Research Council Postdoctoral Fellow, Tyndall Air Force Base 1997-2000.
Examined processes affecting the fate and transport of chlorinated hydrocarbons in subsurface environments. Specific projects included: 1) Reductive dehalogenation of chlorinated aliphatic hydrocarbons by green rusts; 2) investigation of the potential for humic-transition metal complexes to act as electron transport mediators in the reductive transformation of organic contaminants; and 3) design, construction and field-testing of flux chambers to measure TCE volatilization from TCE contaminated aquifers.

Graduate Research Assistant, Ohio State University 1987-1997.
Participated in many interdisciplinary research projects in the areas of environmental microbiology and environmental chemistry including: 1) isolation and characterization of aromatic *N*-heterocycle-degrading bacteria; 2) biodegradation of aromatic *N*-heterocycles in subsurface sediments; 3) sorption of atrazine and alachlor to subsurface sediments; 4) isolation and characterization of humic substances in lacustrine sediment porewaters; and 5) association of organometallic compounds with aquatic humic substances.

Selected peer-reviewed publications

O'Loughlin, E.J., P. Larese-Casanova, R.E. Cook, and M.M. Scherer. (In review). Biogenic green rust formation from dissimilatory iron reduction of lepidocrocite: Comparison of several *Shewanella* species. *Geomicrobiol. J.*
Kemner, K.M., **E.J. O'Loughlin,** S.D. Kelly, and M.I. Boyanov. 2005. Synchrotron x-ray investigations of mineral-microbe-metal interactions and their effects on metal transformations. *Elements* 1:217-221.
Kemner, K.M., S.D. Kelly, **E.J. O'Loughlin**, T. Khare, L.A. Moe, B.G. Fox, M.I. Donelly, Y Londer, M. Schiffer, and C.S. Giometti.D. 2005. XRF and XAFS analysis of electrophoretically isolated nondenatured proteins. *Physica Scripta.* T115:94-942.
O'Loughlin, E.J., Y.-P. Chin. 2004. Quantification and characterization of sedimentary porewater dissolved organic carbon and iron from Green Bay, WI, USA. *Biogeochem.* 71(3):371-386.
Kemner, K.M., S.D. Kelly, B. Lai, J. Maser, **E.J. O'Loughlin**, D. Sholto-Douglas, Z. Cai, M. A. Schneegurt, C. F. Kulpa, and K.H. Nealson. 2004. X-ray microbeam analysis of bacteria: Elemental and redox determination of single cells. *Science* 306:686-687.

Borrok, D., J.B. Fein, M. Tischler, **E. O'Loughlin**, K.M. Kemner, H. Meyer, and M. Liss. 2004. Effects of acidic solutions and growth conditions on the adsorptive properties of bacterial surfaces. *Chem. Geol.* 209:107-119.

O'Loughlin, E.J., and D.R. Burris. 2004. Reduction of halogenated ethanes by green rust. *Environ. Toxicol. Chem.* 23: 41-48.

O'Loughlin, E.J., S.D. Kelly, K.M. Kemner, R. Cesncsits, and R.E. Cook. 2003. Reduction of Ag^{I}, Au^{III}, Cu^{II}, and Hg^{II} by Fe^{II}/Fe^{III} hydroxysulfate green rust. *Chemosphere* 53: 437-446.

O'Loughlin, E.J., K.M. Kemner, and D. R. Burris. 2003. Effects of Ag^{I}, Au^{III}, and Cu^{II} on the reductive dechlorination of carbon tetrachloride by green rust. *Environ. Sci. Technol.* 37: 2905-2912.

O'Loughlin, E.J., S.D. Kelly, R.E. Cook, R. Csencsits and K.M. Kemner. 2003. Reduction of uranium(VI) by mixed Fe(II)/Fe(III) hydroxide (green rust): Formation of UO_2 nanoparticles. *Environ. Sci. Technol.* 37: 721-727.

O'Loughlin, E.J., H. Ma, and D.R. Burris. 2003. Catalytic effects of Ni-humic complexes on the reductive dehalogenation of C_1 and C_2 chlorinated hydrocarbons. In E.A. Ghabbour and G. Davies (Eds.), *Humic Substances: Nature's Most Versatile Materials*. Taylor and Francis, Inc., New York, pp. 295-322.

Ma, Huizhong, **E.J. O'Loughlin,** and D.R. Burris. 2001. Factors affecting humic-nickel complex mediated reduction of trichloroethene in homogeneous aqueous solution. *Environ. Sci. Technol.* 35:717-724.

O'Loughlin, E.J., and Y.-P. Chin. 2001. Effect of detector wavelength on the determination of the molecular weight of aquatic and terrestrial humic substances by high pressure size exclusion chromatography. *Wat. Res.* 35:333-338.

O'Loughlin, E.J., and D.R. Burris. 2000. Reductive dehalogenation of trichloroethene mediated by wetland DOC-transition metal complexes. In J.L. Means and R.E. Hinchee (Eds.), Wetlands and Remediation. Battelle Press, Columbus, OH, pp. 1-8.

O'Loughlin, E.J., Y.-P. Chin, and S.J. Traina. 2000. Association of organotin compounds with aquatic and terrestrial humic substances. *Environ. Toxicol. Chem.* 19:2168-2174.

O'Loughlin, E.J., S.J. Traina, and G.K. Sims. 2000. Effects of sorption on the biodegradation of 2-methylpyridine. *Environ. Toxicol. Chem.* 19:2015-2021.

O'Loughlin, E.J., D.R. Burris, and C.A. Delcomyn. 1999. Reductive dechlorination of trichloroethene mediated by humic-metal complexes. *Environ. Sci. Technol.* 33:1145-1147.

O'Loughlin, E.J., G.K. Sims, and S.J. Traina. 1999. Biodegradation of 2-methyl, 2-ethyl, and 2-hydroxypyridine by an *Arthrobacter* sp. isolated from subsurface sediment. *Biodegrad.* 10:93-104.

O'Loughlin, E.J., S. Kehrmeyer, and G.K. Sims. 1996. Isolation, characterization, and substrate utilization of a quinoline degrading microorganism. *Internat. Biodeterior. Biodegrad.* 38:107-18.